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添付公開書類:

— 国際調査報告書

(72) 発明者: および

2 文字コード及び他の略語については、定期発行される各 PCT ガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

(75) 発明者/出願人 (米国についてのみ): 小林 修

(54) Title: PRACTICAL CHIRAL ZIRCONIUM CATALYST

(54) 発明の名称: 実用的キラルジルコニウム触媒

(57) Abstract: A practical chiral zirconium catalyst, characterized in that a chiral zirconium catalyst is fixed on a zeolite. The practical chiral zirconium catalyst can maintain high catalyst activity after the storage for a long period of time, is stable also in air, can be recovered and reused after reaction, and thus exhibits high practicality.

(57) 要約: 長期保存においても高い触媒能を維持でき、安定で、反応後の回収、再利用も可能な実用性の高いキラルジルコニウム触媒として、キラルジルコニウム触媒がゼオライトに固定化されていることを特徴とする実用的キラルジルコニウム触媒を提供する。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/02860

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ B01J31/38, C07C227/12, 229/34, 327/22, C07D307/52,
C07B61/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ B01J21/00-38/74, C07B61/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

JSTPlus (JOIS)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Noriyuki SUZUKI et al., "Silica Hyomen e Kotei-ka Shita Metalloocene Sakutai ni yoru Olefin no Rittai Kisoku-sei Jugo", Shokubai, Vol.41, No.6, 1999, pages 392 to 394	1, 7
P, X	Masaharu UENO et al., "Choki Hozon Kano na Shinki Zeolite Kotei-ka Chiral Zirconium Shokubai", CSJ: The Chemical Society of Japan Koen Yokoshu, Vol.81, No.2, 2002, page 1244	1, 8, 12
P, X	Masaharu UENO et al., Air-Stable, Storable, and Highly Selective Chiral Lewis Acid Catalyst, Org. Lett., Vol.4, No.20, 2002, pages 3395 to 3397	1-8, 12

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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Date of the actual completion of the international search
09 June, 2003 (09.06.03)Date of mailing of the international search report
24 June, 2003 (24.06.03)Name and mailing address of the ISA/
Japanese Patent Office

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/02860

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2001-252569 A (Japan Science and Technology Corp.), 18 September, 2001 (18.09.01), Full description (Family: none)	1-3, 7, 13
Y	WO 01/21625 A1 (THE PENN STATE RESEARCH FOUNDATION), 29 March, 2001 (29.03.01), Full description & AU 7590600 A	1-3, 7, 13
A	US 2001-12906 A1 (BAYER CORP. PATENT DEPARTMENT), 09 August, 2001 (09.08.01), Claims; Par. Nos. [0014], [0030] & JP 2001-253855 A Claims; Par. Nos. [0014], [0030] & DE 10005601 A & EP 1123916 A1 & SK 1992001 A	1-14